



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/736,922

12/16/2003

Di Wei

60246-223; 10,692

5821

26096 . 7590 05/14/2007
CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER

MAYEKAR, KISHOR

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

05/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

4

Office Action Summary	Application No. 10/736,922	Applicant(s) WEI ET AL.	
	Examiner Kishor Mayekar	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17, 18 and 20-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17, 18 and 20-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 47 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. New dependent claim recites the limitation that one of the first coating or the second coating is located on the first surface portion, and a third layer is located on the second surface portion. The limitation raises an issue of new matter since there is no support for the limitation in the specification as originally filed. In paragraph 63 of the specification, it discloses an alternative embodiment as shown in Fig. 5 of a coating on a first portion of a substrate and a coating on a second portion of the substrate that is adjacent to the first portion. And in the subsequent paragraph 64, it discloses different coating formulations are placed on different substrates.

Art Unit: 1753

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 47 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

New dependent claim 47 is confusing to the recited a third layer located on the second surface portion when there is none of the first and second layers recited.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-14, 17, 18, 34 and 36 stand and new claims 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 6,368,668 B1), for reasons as of record. To the added limitation to the independent claim 1 from cancelled claim 19, it would have been obvious matter of design choice as asserted by the examiner in the last Office action since Applicant has not disclosed that having the first layer on a portion of a substrate surface and the second layer on a different portion of the substrate surface, that is adjacent to the first surface portion, would enhance the

Art Unit: 1753

process or is for any particular purpose and it appears that Kobayashi's photocatalytic oxidation multilayers would perform equally well in the enhancing of the purification of fluid. Further, since the independent claim 1 now recites that the first layer of metal compound/titanium dioxide on the first surface and the second layer of metal compound/titanium dioxide on the second surface, the claim recites that both layers can be of the same metal compound/titanium dioxide and there is no difference between the now amended claim 1 and the previous non-amended claim 1.

7. Claim 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi '668 in view of Reisfeld et al. (US 2003/0021720 A1), for reasons as of record.

8. Claims 7-12 stand and amended claims 20, 33, 37, 38, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi '668 in view of Reisfeld '720, for reasons as of record. To the added limitation to the independent claim 20, it would have been obvious matter of design choice since Applicant has not disclosed that having the first layer on a portion of a substrate surface and the second layer on a different portion of the substrate surface adjacent to the first surface portion would enhance the process or is for any particular purpose and it appears that Kobayashi's multi layers would perform equally well in the enhancing of the purification of fluid. Further, since the independent claim 20 now recites that the first layer of metal oxide/titanium dioxide on the first

Art Unit: 1753

surface and the second layer of metal oxide/titanium dioxide on the second surface, the claim recites that both layers can be of the same metal oxide/titanium dioxide and there is no difference between the now amended claim 20 and the previous non-amended claim 20.

9. Claims 21-32 and 39-42 stand and new claim 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld '720 in view of Kobayashi '668, for reasons as of record.

As to the new depending claim 47, it would have been obvious matter of design choice since Applicant has not disclosed that having the first layer on a portion of a substrate surface and the second layer on a different portion of the substrate surface adjacent to the first surface portion would enhance the process or is for any particular purpose and it appears that Kobayashi's multi layers would perform equally well in the enhancing of the purification of fluid.

Double Patenting

10. Claims 1-14, 17, 18 and 20-47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22, 24-34, 36 and 37 of copending Application No. 10/736,921. Although the conflicting claims are not identical, they are not patentably distinct from each other because the

Art Unit: 1753

above claims are broader than the patent claims, and comprise all the limitations of the patent claims except for the added limitation of one of the coatings on the first portion and the other on the second portion. The subject matter as a whole would have been obvious matter of design choice since Applicant has not disclosed that having the first layer on a portion of a substrate surface and the second layer on a different portion of the substrate surface adjacent to the first surface portion would enhance the process or is for any particular purpose and it appears that Kobayashi's multi layers would perform equally well in the enhancing of the purification of fluid.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

11. Applicant's arguments filed 28 February 2007 have been fully considered but they are not persuasive.

Applicant argues that Kobayashi does not disclose or suggest the features recited in claim 1. Since Kobayashi discloses a layered coating may be coated onto a surface of a substrate a plurality of times to form a stacked or multilayer coating, whether the coating is from identical photocatalyst coating composition or from a successive coating of a plurality of different photocatalyst coating compositions (col. 10, lines 17-30) and since

Art Unit: 1753

the claim recites that both layers can be of the same metal compound/titanium dioxide, the rejection stands.

Applicant also argues that the claimed arrangement and the arrangement in Kobayashi would not necessarily perform equivalently. Since the examiner has asserted in the last Office action that the specification discloses that each of the layers is used to absorb each of the specific contaminants and, when one specified contaminant is adsorbed on one of the layers, each of the non-adsorbed contaminants is able to diffuse through the layer and adsorbs on the subsequent layer and since the claimed arrangement appears to be identical to Kobayashi's arrangement when both layers can be of the same metal compound/titanium oxide. Further, both arrangements would perform equivalently when absorbing contaminants on layers arranged in series or in parallel.

Applicant argues to the rejection of claim 35 as it fails to modify the base reference and to establish prima facie obviousness. Since Kobayashi discloses the limitation as claimed and the substrates be any substrates upon which a photocatalyst material is coated and since Reisfeld shows the use of a honeycomb substrate upon which a photocatalyst material is coated, the rejection stands.

Applicant argues to the rejection of claims 7-12, 20, 33, 37, 38, 43 and 44, since Kobayashi discloses the recited limitation, the rejection stands.

Applicant argues to the rejection of claims 21-32 and 39-42 as it fails to establish prima facie obviousness and to provide any motivation for selecting and using the

Art Unit: 1753

particular coating composition. Since Reisfeld discloses the provision of two honeycomb photocatalytic filters where each of the filters is coated with any suitable photocatalyst coating and since Kobayashi shows the provision of a stacked or multilayer photocatalyst coating, whether the coating is from identical photocatalyst coating composition or from a successive coating of a plurality of different photocatalyst coating compositions (col. 10, lines 17-30) and since the independent claim 21 recites that both layers can be of the same metal compound/titanium dioxide, the rejection stands.

To the argument to the rejection of claim 27 when referencing to paragraph 49 of the specification to the significant order of the substrate, there is no reference to the significant order in the indicated paragraph 49.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

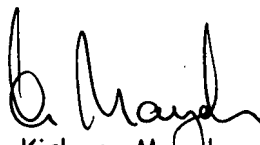
Art Unit: 1753

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Kishor Mayekar
Primary Examiner
Art Unit 1753